



SIMA-tec GmbH

**Special plant construction
and engineering services**



Quality in **Consulting and research system engineering**

Since 2004 SIMA-tec stands for quality in the area of research system engineering and engineering services for industry. Scientists and engineers at more and more universities and research departments work with SIMA-tec pilot systems in the process engineering sector. As a special plant constructor we are able to turn even complex ideas and innovations into reality. But our standard membrane technology products are also valuable laboratory tools. With our consulting services SIMA-tec

provides competent and creative support for our industrial partners. In the area of process development we support everything from initial laboratory testing, through pilot development, up to the implementation of complete projects. Our enthusiastic, knowledgeable and experienced team will be happy to support you with process analyses and process development, but also with training for your staff and the maintenance of your systems.

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Our core business

Plant construction

Membrane technology

SIMA-tec can draw on substantial experience in the area of membrane technology. Over the years we have created a wide variety of laboratory and pilot systems.

All common membrane and module forms can be integrated in these systems. Even latest innovations are implemented in systems for our customers. No matter whether serial product or special system: We will find the right solution for your application.



Test stands

Whether for teaching, research or production: Due to our experience, you get the test stand you need!

According to our demand, we place great emphasis on high quality and constant dialogue with our customers when developing and building your test stand. That is the best way to provide you with a high-performance product which fits to your requirements.

Describe your testing tasks to us: Together, we will develop a test stand which meets your requirements.



Separating technology

The area of separating technology comprises technologies which use physical, chemical or thermal processes to separate mixtures of substances. SIMA-tec has already developed a variety of custom solutions in a wide range of research areas. A few examples are extraction, adsorption, chromatography, magnetic separation, electrolysis and precipitation. The laboratory- or pilot-scale systems can be realised fully automated or manually controlled. Challenge us with your separating tasks. We will create your research system in the area of separating technology.



Oxidation processes

SIMA-tec also has experience and expertise in the construction of systems at laboratory and pilot scales in the varied area of oxidation processes. The technologies applied include both chemical oxidising agents as well as oxidation through UV radiation. Whether for drinking water treatment or a special application of oxidation processes for research - together with you we will develop a concept for a system perfectly suited to your demands.



Industrial technology

Special systems for technical application in the laboratory or in production are bundled under the term industrial technology. In this area, we develop exceptional solutions together with our industrial customers, which the conventional market cannot provide. One example of our work in this area is the development of a pilot plant for the recovery of acid in the area of pickling technology within metal processing. Using a creative and solution-oriented approach, our team is able to provide fast and cost-effective solutions for your applications.



Our systems

Examples

The CUBE series

With its compact dimensions of only 400 - 450 mm edge length, this cube is our smallest and lightest laboratory membrane test system. But it does not have to hide.

Quite the opposite!

Depending on the specification, the CUBE allows a wide variety of tests using flat membranes in the area of ultra- and micro-filtration or in the area of reverse osmosis and nano-filtration.

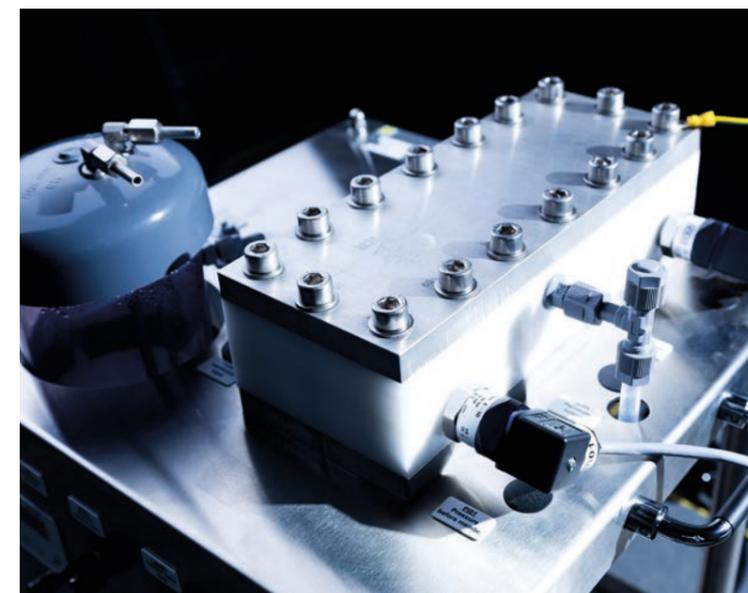
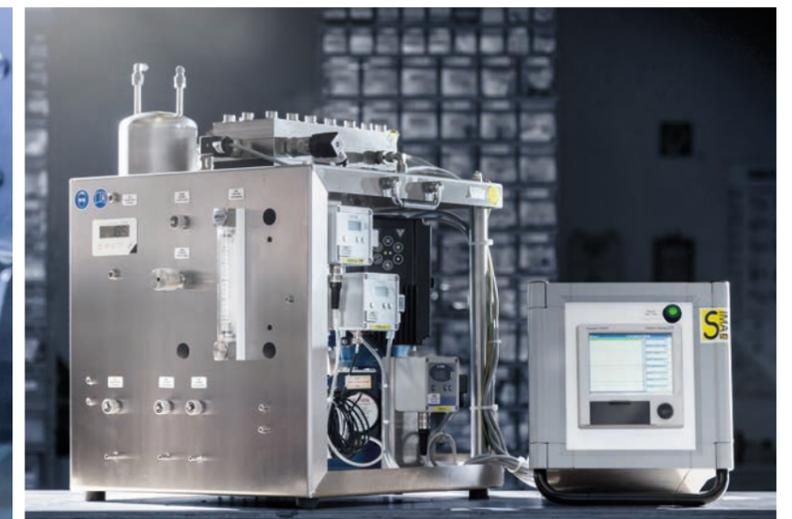
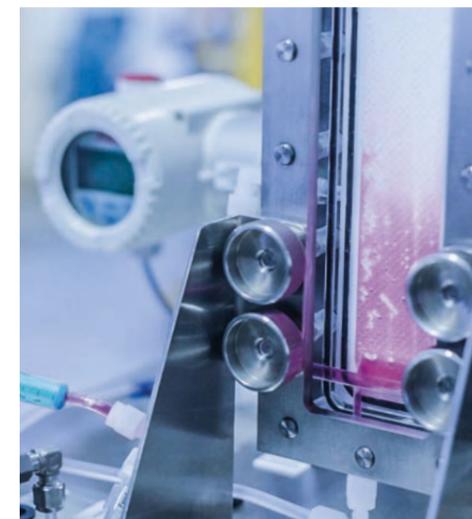
The CUBE is a complete system and can be equipped with many options, even automatic data collection.

There is a variety of applications. Whether you want to compare different membrane types with each other, check the long-term membrane behaviour, or prepare small amounts of raw materials, the CUBE offers many possibilities!

Its portability makes it very well suited to field trials and demonstrations at your customers premises!

Our CUBE is available in three equipment versions (CUBE 05, CUBE 05-VA, CUBE 80-VA). Each of these versions can be connected to the SIMA-tec® measurement box, which allows you to record and visualise all important process parameters such as pressure, temperature, feed flow and permeate flow.

By connecting the measurement box to a PC, it is possible to monitor the tests on the CUBE even from far away via web-server!



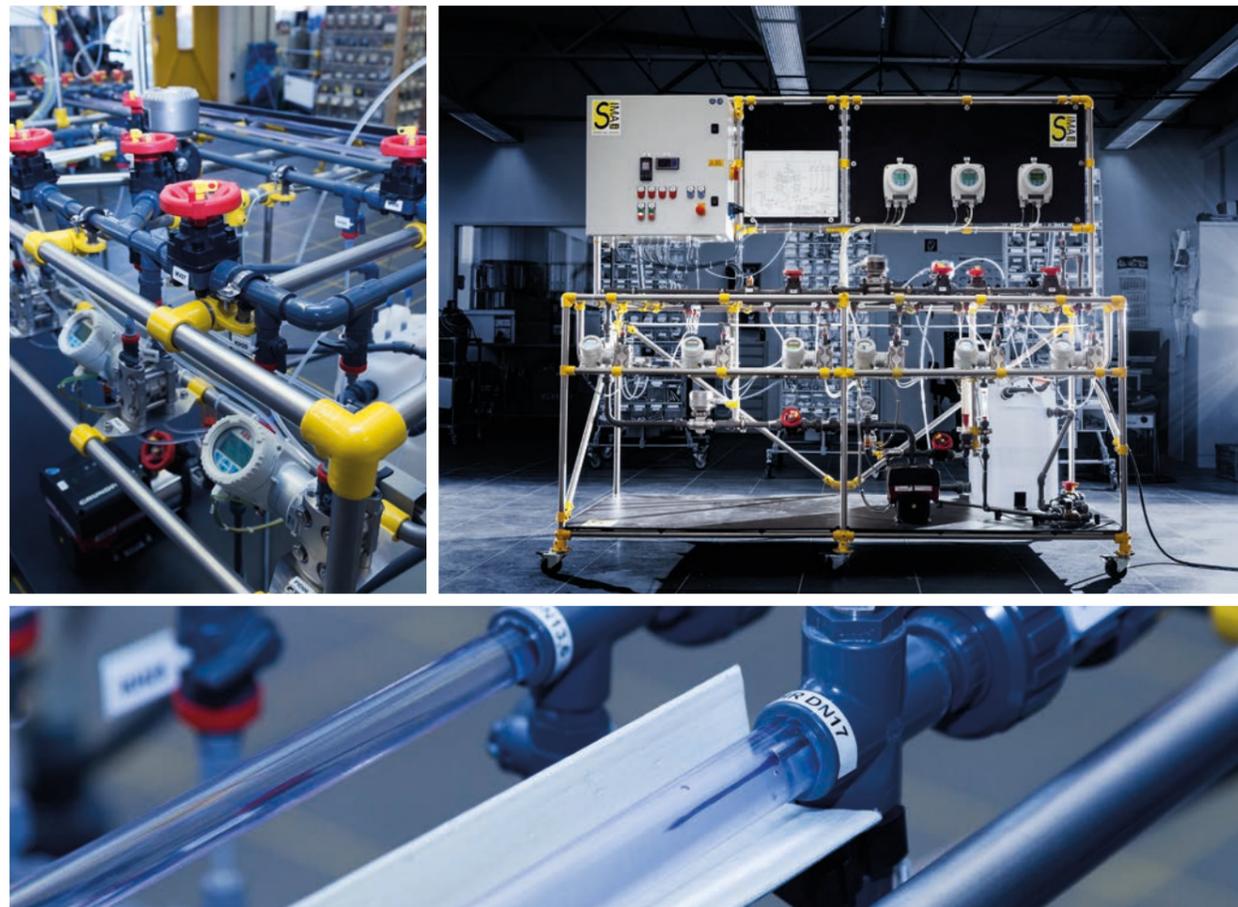
The test stand for flow dynamics

The flow dynamics test stand was constructed for tests to investigate flow measurement technology, piping networks, pipe flow and for visualising laminar and turbulent flow. There was a special emphasis on student education.

In the test stand, water can be routed through different pipe geometries and arrangements, with multiple high-sensitivity differential pressure and flow measurement sensors which can measure the whole spectrum of operating modes and flow conditions.

Tests for flow measurement technology are carried out on venturi pipes and piping networks in a range of pipe geometries and pipe roughnesses.

A particularly interesting feature is a test to visualise laminar and turbulent flow, where a coloured dye can be added in a controlled manner to the flow.



The solvent dosing stand

In this example the task was to find a special solution for the laboratory sector to dose tiny quantities of solvents automatically. In the past it was normal to manually dose common solvents and mixtures for series resistance tests on new materials.

Not a creative job, but one which must be done with the utmost precision.

To free up resources and reduce strain on the staff, a dosing stand was developed

which can take over the dosing task with high precision and at that at high speed.

Convenient operation is guaranteed by a modern external tablet control.





Your added value

Training

Membrane process seminars

Living technology! That is what we demand for our training courses on the topic of membrane processes. The participants of the training courses are provided with both the basics of membrane technology as well as practical experience directly on various realistic test systems in small groups (maximum 12 persons). The first part of the seminar deals with the pressure-driven membrane processes of microfiltration and ultrafiltration, the second part explains nanofiltration and reverse osmosis.

The participants are given the knowledge to be able to correctly organise the necessary support for membrane systems and to react responsible in the event of faults. We offer the seminar in Schwalmatal twice per year.

In-house training

Of course we will gladly train your staff at your premises as well. Our in-house training courses are directly focused on a newly installed or existing system and the associated problem areas during operation. To be able to structure the training content in the optimum way, a detailed analysis of the system will be carried out in advance. This allows the problem areas to be addressed directly in the training and brings the staff up to a common level. Our training has often reduced the operating costs of the systems substantially. Topics where we would be pleased to support you include:

- Pressure-driven membrane processes (micro-, ultra- and nanofiltration, reverse osmosis)
- Electrical membrane process (electrodialysis)
- Waste water technology
- Surface treatment

Our services

Industrial service

Services

Benefit from many years of experience gained by SIMA-tec in the area of process technology. SIMA-tec is your qualified partner from process development up to the final process. In addition we can also support you during the development and implementation of maintenance concepts. We will accompany you from the first idea up to the final process. Rely on our experienced and creative team. The benefit to you: You can concentrate on your core business and profit from our development work. Here we also place special emphasis on communicating with you. This means your ideas are implemented exactly.

Some of our services:

- Concept development
- Laboratory tests and piloting
- Preparation of tender documents
- Technical offer comparison
- Construction management
- Technical construction support
- Maintenance concepts
- Maintenance and testing

Process development

Based on a process analysis, SIMA-tec develops a process concept. The practicability of the concept is first checked in pre-tests (laboratory- or pilot-scale). If the process is identified as feasible in these trials, an initial assessment of the cost-effectiveness will be undertaken using the process parameters identified.

After an optional check of the data gained in a piloting step, the development results in the creation of a specification. This allows an implementation of the process idea.



Process analyses

One business goal is constant quality improvement with concurrent cost reduction. In order to achieve this it has to be analysed where in the individual processes are weaknesses and where are hidden potentials.

The key questions are:

- What happens during the processes?
- Where is optimisation worthwhile?
- Which problems exist in the processes?

Process analysis provides the answers to these questions. The analysis carried out by SIMA-tec includes data collection, data evaluation, supporting analysis, addition of expert knowledge and suitable balancing. Thereby, the problems and weak spots can be identified and described.



Investigations

Our various test systems, test cells and test modules allow us to offer you qualified membrane screening or on-site piloting. Based on our system philosophy, the test systems generally have an electronic data recording system, so that the tests are always fully documented.

Use the experience of our team in the area of membrane screening and piloting for fast and reliable assessment of your filtration task.



Our customers – References

A wide range of satisfied customers, both in the plant construction sector and in the area of industrial services reflect our long-term experience and expertise.

Some of these customers are:



**Challenge us,
we will find your solution.**

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